

Attorney Docket 082671-0191

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Josephus Martinus Maria Van Gastel
Title: COMPONENT PLACEMENT MACHINE
Application No.: 09/594,405
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Examiner: Anthony D. TUGBANG
Art Unit: 3729
Confirmation No.: 9106

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Sir:

In accordance with the New **Pre-Appeal Brief Conference Pilot Program**, announced July 11, 2005, this Pre-Appeal Brief Request is being filed together with a Notice of Appeal.

REMARKS

The following rejections are being presented for review. Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,806,174 ("Itoh") in view of U.S. Patent No. 5,086,559 ("Akatsuchi"). For at least the following reasons, Applicant respectfully traverses this rejection.

As previously presented, claim 1 recites a machine for placing components on a printed circuit board. The claimed machine includes (a) a transport device for transporting printed circuit boards in an X-direction and (b) a Y-slide which is independently drivable in the X-direction. At least two placement heads are positioned on the Y-slide. Each placement head on the Y-slide is configured to move in the X-direction and is independently drivable in the Y-direction. The above-described structure makes it possible to configure embodiments that place components on a circuit board at a high rate by picking up a component from a feeder with one

placement head while another placement head simultaneously prepares a component for placement on a circuit board. *See* Applicant's Specification at p. 2.

Itoh discloses an apparatus with a moving part 1 that is driven in the X-axis direction along first guides 8 by a driving means 7 (Col. 2, lines 61-63). First and second movable members 2,3 are mounted on the moving part 1 and driven in the Y-axis direction by first and second moving means 9, 10 (Col. 2, line 66 - Col. 3, line 5). First and second fitting heads 4,5 are respectively attached to the first and second movable members 2,3 (Col. 3, lines 6-12). The apparatus moves components from supply part m to first and second mounting parts n1 and n2 (Col. 3, line 55 - Col. 4, line 9). To accomplish this operation, the moving part 1 is driven in the X-axis direction and the first and second fitting heads 4,5 are driven in the Y-axis direction.

In rejecting claim 1, the Examiner admits: "Itoh does not mention that the structure of the transport device can transport the circuit boards in an X-direction, or a direction that is parallel to the drivable direction of movement of the Y-slide." *See* the Office Action dated May 24, 2006 at p. 2. To cure the admitted deficiency of Itoh, the Examiner turns to Akatsuchi. However, the Examiner's reliance on Akatsuchi is misplaced.

M.P.E.P. § 2143 states that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the prior art to modify the reference. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest all the claim limitations.

There is no suggestion or motivation in the prior art to modify or combine Itoh and Akatsuchi. Specifically, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.) Here, the Examiner has not provided any evidence in the prior art that suggests the desirability of the combination of Itoh and Akatsuchi.

Akatsuchi is directed toward a component placing apparatus. Akatsuchi discloses two separate and distinct X/Y moving tables 8 *See* FIG. 1. Each of the tables 8 is independently

drivable. Moreover, the singular pick-and-place unit 10 associated with each of the tables 8 is independently drivable in the X and Y directions by the associated X-axis table 8a and Y-axis table 8b. In addition, Akatsuchi discloses a conveyor 5 to convey a printed circuit board in and out of a positioning unit located below the X/Y tables.

In the Office Action, the Examiner proposes combining the apparatus of Itoh disclosed in FIG. 1 with the conveyor 5 disclosed in FIG. 1 of Akatsuchi. However, this combination would result in the conveyor 5 running perpendicular to the direction of movement of the moving part 1 of Itoh. This combination will not meet the present claim limitations because claim 1 requires “a transport device for transporting printed circuit boards in an X-direction” and “at least two placement heads are interconnected such that a movement of a first of the at least two placement heads over a certain distance in the X-direction is configured to cause a simultaneous, dependent movement of a second of the at least two placement heads over the same distance in the X-direction.” Thus, claim 1 requires that at least two placement heads be moved simultaneously over the same distance in the same direction as that of the transport device direction. *See* FIG. 1.

In an attempt to diminish this claimed difference, the Examiner states in the Office Action that it would have been obvious to “rearrange the transport device to transport the printed circuit boards in the X-direction (e.g., same direction of movement of the Y-slide).” However, Applicant notes that “[t]he mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims...is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant’s specification, to make the necessary changes in the reference device.” *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). Here, the Examiner has not pointed to any evidence in the prior art that provides a motivation or a reason to “rearrange the transport device to transport the printed circuit boards in the X-direction (e.g., same direction of movement of the Y-slide).” Accordingly, no proper motivation exists to combine the teachings of Itoh and Akatsuchi to reject claim 1.

In the Advisory Office Action dated August 21, 2006, the Examiner asserts that there is “some teaching, suggestion, or motivation” to combine the cited references because “both are performing the same art recognized equivalent purpose, e.g. to place components on a printed circuit board” and “both are also solving the very same problems associated with placing

components on a printed circuit board.” This fact alone is not sufficient to establish a *prima facie* case of obviousness. In providing this justification, the Examiner has done no more than acknowledge that both Itoh and Akatsuchi relate to electrical component placing. MPEP § 2143 clearly states that the teaching or suggestion to make the claimed combination must be found in the prior art, not in the Applicant’s disclosure. Further, although a prior art device ‘may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.’” *In re Mills* 916 F.2d at 682. Here, the Examiner’s explanation in the Advisory Action fails to identify a teaching or suggestion made in the prior art to combine Itoh and Akatsuchi. Instead, with the benefit of the Applicant’s claims, the Examiner relies on hindsight reasoning to justify a rearrangement of separate and independent components of both Itoh and Akatsuchi to allegedly meet the claimed limitations. Accordingly, a *prima facie* case of obviousness has not been established because there is no suggestion or motivation in the prior art to combine Itoh and Akatsuchi.

In addition, even assuming, *arguendo*, that one of ordinary skill in the art were motivated to incorporate Akatsuchi’s conveyer 5 and positioning units 4 into the Itoh’s mounting apparatus A, as stated above, there is no teaching or suggestion that the conveyor would transport printed circuit boards (“PCBs”) in a direction parallel to the direction (*e.g.*, X-direction) in which the Y-slide moves. Rather, as Akatsuchi’s conveyor 5 successively brings the PCBs 3 to each of the mounting tables 8, if one of ordinary skill in the art were to apply such teaching to the Itoh’s mounting apparatus A, the conveyor would be positioned to successively bring PCBs to each of Itoh’s fitting heads 4, 5 (*i.e.*, along what appears in FIG. 1 to be rails that support the mounting parts n); such a direction of transport would, contrary to the above-mentioned limitations of claim 1, be perpendicular to the direction of movement (*i.e.*, X-direction) of the Y-slide.

Applicant notes that the above-described orientation resulting from a straightforward combination of Itoh and Akatsuchi likely would result in a operable and working device. There also is no suggestion provided in Itoh or Akatsuchi to further rearrange the parts of both references to meet Applicant’s claim limitations. Instead, it appears that the Examiner, having the benefit of Applicant’s claims, has relied on impermissible hindsight to combine Itoh and Akatsuchi and then further to rearrange the components of Itoh and Akatsuchi in an attempt to allegedly meet the claimed language. Moreover, even if one of ordinary skill in the art wanted to apply Akatsuchi’s conveyor belt in such a manner that it would transport PCBs in a direction

parallel to the direction of transport of Itoh's Y-slide, such an arrangement appears to be precluded by the positioning of Itoh's support m *See* Fig. 1. Thus, the combination of Itoh and Akatsuchi do not disclose teach or suggest each and every limitation of claim 1. Accordingly, for this additional reason, the rejection should be withdrawn.


In light of the foregoing, it is clear that the combination of Itoh and Akatsuchi fails to teach or suggest at least the above-mentioned limitations of claim 1. Accordingly, the combination of Itoh and Akatsuchi can not be used to reject claim 1, or any claim dependent thereon, under 35 U.S.C. § 103(a). Moreover, as claim 2 depends from claim 1, claim 2 is also allowable over the combination of Itoh and Akatsuchi, even without regard to the other patentable limitations recited therein. However, as Itoh and Akatsuchi both teach a total of only two placement heads (4, 5 in Itoh and 10, 10 in Akatsuchi), neither reference teaches or suggests the limitations of claim 2, which limitations require at least two Y-slides each of which has at least two placement heads. Claim 2 is, therefore, allowable over Itoh and Akatsuchi for at least this additional reason. A withdrawal of the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) is, therefore, both warranted and earnestly solicited.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance.

Respectfully submitted,

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